

CLAIMS

I claim:

Claim 1. An ergonomic swim fin apparatus sized to fit about a user's foot, which comprises:

- a) a stiff foot plate sized to receive a user's foot therein;
- b) at least one securing strap to secure the stiff foot plate to a user's foot;
- c) opposing channeling scoops positioned on opposite sides of the stiff foot plate; said channeling scoops positioned to channel water during the up-stroke and the down-stroke of the ergonomic swim fin apparatus.

Claim 2. The ergonomic swim fin apparatus of claim 1, wherein a flexible blade extends beyond the stiff foot plate, to a distal end positioned on the longitudinal axis of the ergonomic swim fin apparatus, and a symmetrical tail fin is selectively attached and removed upon the distal end of the flexible blade.

Claim 3. The ergonomic swim fin apparatus of claim 2, wherein the tail fin has a centrally disposed extended neck portion and left and right symmetrical fin portions, and the tail fin is releasably secured to the distal end of the flexible blade with a releasable securement means.

Claim 4. The ergonomic swim fin apparatus of claim 2, wherein the flexible blade has a curved symmetrical trailing edge centered on the longitudinal axis of the ergonomic swim fin apparatus, and the tail fin has a complimentary curved trailing edge positioned in spaced, complimentary alignment with the curved symmetrical trailing edge of the flexible blade, and water flowing across the flexible blade passes over the tail fin, to produce additional lift and thrust.

Claim 5. The ergonomic swim fin apparatus of claim 1, wherein the stiff foot plate is in the form of footwear, with opposing channeling scoops positioned on opposite sides of the footwear; said channeling scoops curved to channel water during the up-stroke and the down-stroke of the ergonomic swim fin apparatus.

Claim 6. The ergonomic swim fin apparatus of claim 1, wherein the ergonomic swim fin apparatus has a rigid forebody, a flexible afterbody and a symmetrical tail fin, and the rigid forebody comprises 40 percent to 80 percent of the length of the ergonomic swim fin apparatus.

Claim 7. The ergonomic swim fin apparatus of claim 1, wherein a plurality of small grooves form a texture on the outer surface of the ergonomic swim fin

apparatus to enhance the production of small vortices in water, which serve to enhance the movement of the ergonomic swim fin apparatus through water.

Claim 8. An ergonomic swim fin apparatus sized to fit about a user's foot, which comprises:

- a) a stiff foot plate sized to receive a user's foot therein, and to extend beyond the user's foot to form a flexible blade;
- b) at least one upper securing strap to secure the user's foot to the flexible foot plate; a separate rear securing strap positioned to releasably secure the user's heel to the flexible foot plate;
- c) opposing curved channeling scoops positioned on opposite sides of the stiff foot plate; said channeling scoops positioned to channel water during the up-stroke and the down-stroke of the ergonomic swim fin apparatus;
- d) an inclined, symmetrical trailing edge positioned on a distal end of the flexible blade, the symmetrical trailing edge extending on each side of the longitudinal axis of the ergonomic swim fin apparatus; and
- e) a symmetrical tail fin with an inclined leading edge in spaced alignment in relation to the inclined symmetrical trailing edge of the flexible blade; wherein water flowing across the flexible blade passes over the tail fin, to

increase lift and thrust.

Claim 9. The ergonomic swim fin apparatus of claim 8, wherein a tail fin having a centrally disposed extended neck portion and left and right symmetrical fin portions is releasably secured to the distal end of the stiff foot plate with a releasable securement means.

Claim 10. The ergonomic swim fin apparatus of claim 8, wherein the stiff foot plate is in the form of footwear having a toe end and a heel end, a first side and a second side, with opposing curved channeling scoops positioned on the first and second sides of the footwear; said curved channeling scoops positioned to channel water during the up-stroke and the down-stroke of the ergonomic swim fin apparatus, and said curved channeling scoops upwardly inclined from the toe end of the sandal towards the heel end of the sandal.

Claim 11. The ergonomic swim fin apparatus of claim 8, wherein the ergonomic swim fin apparatus has a rigid forebody, a flexible afterbody and a symmetrical tail fin, and the rigid forebody comprises 40 percent to 80 percent of the length of the ergonomic swim fin apparatus.

Claim 12. The ergonomic swim fin apparatus of claim 8, wherein a plurality of small overlapping shapes form a texture on the outer surface of the ergonomic swim fin apparatus to enhance the production of small vortices in water, which serve to enhance the movement of the ergonomic swim fin apparatus through water.

Claim 13. The ergonomic swim fin apparatus of claim 8, wherein the symmetrical tail fin is selectively attachable and detachable from the flexible blade, and a portion of the flexible blade is selectively attachable and detachable from the foot plate, for ease of transport and storage.

Claim 14. The ergonomic swim fin apparatus of claim 13, wherein at least one pin and at least one complimentary aperture are positioned to engage when the portion of the flexible blade is selectively attachable to the foot plate.

Claim 15. The ergonomic swim fin apparatus of claim 8, wherein a flexible securing strap extends over the tarsus portion of a user's foot and is secured to opposing sides of the foot pocket, and an adjustable length heel strap is positioned between opposing sides of the foot pocket, and releasably secured about the user's

heel.

Claim 16. The ergonomic swim fin apparatus of claim 15, wherein the flexible securing strap which extends over the tarsus portion of a user's foot comprises a first securing strap and a second securing strap positioned in spaced relation from the first securing strap.

Claim 17. An ergonomic swim fin apparatus sized to fit about a user's foot, which comprises:

- a) a stiff foot plate forming a foot pocket shaped to conform to a user's foot, and said foot plate sized to extend beyond the user's foot to form a flexible blade;
- b) at least one adjustable upper securing strap to secure the tarsus of a user's foot to the foot pocket; a separate adjustable rear securing strap positioned to releasably secure the user's heel to the foot pocket;
- c) opposing curved channeling scoops positioned on opposite sides of the foot pocket; said channeling scoops positioned to channel water during the up-stroke and the down-stroke of the ergonomic swim fin apparatus, said curved channeling scoops upwardly inclined from proximity to the user's toes to proximity to the user's heel;

- d) a flexible blade extending from the foot pocket, the flexible blade with a symmetrical, inclined trailing edge extending on each side of the longitudinal axis of the ergonomic swim fin apparatus; and
- e) a symmetrical tail fin with an inclined leading edge in spaced alignment in relation to the inclined symmetrical trailing edge of the flexible blade; wherein water flowing across the flexible blade passes over the tail fin, to increase lift and thrust.

Claim 18. The ergonomic swim fin apparatus of claim 17, wherein a tail fin having a centrally disposed extended neck portion and left and right symmetrical fin portions is releasably secured to the distal end of the stiff foot plate with a releasable securement means.

Claim 19. The ergonomic swim fin apparatus of claim 17, wherein a plurality of small overlapping shapes form a texture on the outer surface of the ergonomic swim fin apparatus to enhance the production of small vortices in water, which serve to enhance the movement of the ergonomic swim fin apparatus through water.

Claim 20. The ergonomic swim fin apparatus of claim 17, wherein three spaced pins and three complimentary spaced apertures are positioned to engage when the portion of the flexible blade is selectively attachable to the foot plate.

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